SPECIES IDENTIFICATION

How can you correctly identify species?

OVERVIEW

Students consult expert resources to identify organisms observed during a plot study, and then use this research to complete species inventory cards that represent the biodiversity of the area studied.

For the complete activity with media resources, visit:
http://www.nationalgeographic.org/activity/species-identification/

Program

DIRECTIONS

1. Show students the presentation Species Identification.
Use the Powerpoint presentation to introduce students to the complexities facing scientists as they identify species. As a class, discuss how scientists identify species and the challenges they face, and introduce students to the All Taxa Biodiversity Index, a 10-year inventory of all organisms in Great Smoky Mountains National Park.

2. Introduce the activity.
Show students the photo gallery of students identifying species. Tell students that they will consult expert resources to identify organisms observed in the previous Plot Study Observation activity and then make species identification
cards in order to create an inventory representing the diversity of the area studied. If necessary, review elements commonly included on a species identification card: Family, Scientific Name, Common Name(s), Observation Location, Date Observed, Identified By, and Detailed Description.

3. Divide students into small groups.
If possible, divide students into the same groups from the Plot Study activity, or jigsaw students so that each group is working with data from all plots/groups.

4. Distribute the worksheet and materials.
Distribute the worksheet Species Identification Cards and other necessary materials. Encourage students to use expert resources for research and to incorporate drawings, observations, and photographs in the identification cards.

5. Have students present their findings.
Have students present inventories, share findings, and describe research challenges they may have faced during the activity. Remind students there are between 5 and 30 million species, many nearly identical, and that it takes practice and skill to identify species.

Modification
Adapt this activity for large-group instruction. Have students compile the organisms recorded in their datasheets to make a master list of all organisms observed. Students can organize this list on chart paper, in a computer database, or on a spreadsheet. Next, have students select one or more organisms to identify, consulting expert resources, and then produce a species inventory card. Encourage students to include drawings, sketches, and photographs on their cards.

Modification
If completed Plot Study datasheets are unavailable, direct students to research
species lists from a nearby state or national park, or to use one of the resources in For Further Exploration to complete this activity.

Informal Assessment

Assess how well students’ presentations communicate their findings.

OBJECTIVES

Subjects & Disciplines

Geography
- Physical Geography
Science
- Biological and life sciences

Learning Objectives

Students will:

- consult expert resources, such as field guides, species keys, or online databases
- identify organisms—both plant and animal
- create species inventory cards
- present information on the species they have identified

Teaching Approach

- Learning-for-use

Teaching Methods

- Discussions
Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Remembering
  - Understanding
- Geographic Skills
  - Acquiring Geographic Information
  - Organizing Geographic Information

National Standards, Principles, and Practices

NATIONAL GEOGRAPHY STANDARDS

- **Standard 8:**
The characteristics and spatial distribution of ecosystems and biomes on Earth's surface

NATIONAL SCIENCE EDUCATION STANDARDS

- **(5-8) Standard C-4:**
Populations and ecosystems
- **(9-12) Standard C-6:**
Behavior of organisms

PREPARATION
What You’ll Need

**MATERIALS YOU PROVIDE**

- Butcher paper
- Completed worksheets from previous activity
- Field guides
- Glue
- Paper
- Pens
- Species keys
- Transparent tape

**REQUIRED TECHNOLOGY**

- Internet Access: Optional
- Tech Setup: 1 computer per classroom, Projector
- Plug-Ins: Flash

**PHYSICAL SPACE**

- Classroom

**GROUPING**

- Small-group instruction

**RESOURCES PROVIDED: HANDOUTS & WORKSHEETS**

- [Identifying Species](#)
- [Species Identification Cards](#)

**RESOURCES PROVIDED: IMAGES**
BACKGROUND & VOCABULARY

Background Information

It takes specialized skills and scientific expertise to correctly identify species. There are millions of species on Earth—between 5 and 30 million—and just 2 million species have been identified and named. That means there are more species that are unknown than known. In addition, some species are so similar that differences are visible only through DNA analysis.

Prior Knowledge

["how to complete a species plot study"]

Recommended Prior Activities

- Neighborhood BioBlitz
- North Atlantic Right Whales
- Plot Study Observations

Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Part of Speech</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>plot study</td>
<td>noun</td>
<td>a list of all living organisms in a specific area.</td>
</tr>
<tr>
<td>species</td>
<td>noun</td>
<td>group of similar organisms that can reproduce with each other.</td>
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</tbody>
</table>

For Further Exploration

Websites
PARTNER

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